and then pulsation appeared in it from the collateral circulation. In such circumstances, Mr. Miller would recommend instant application of the ligature, and if this was not done, difficulties were met with afterwards, even if the artery was tied. As it was, in this case the pulsation continued for six weeks. In Dr. Johnston's case, however, the collateral circulation gave no trouble after the deligation of the vessel. In future, if after long-continued pressure the collateral circulation increased greatly, Mr. Miller would cease compression, and, after an interval of rest, would apply a ligature, without, however, any risk of gangrene supervening. Fourth, as to the effect on compressed parts. In the first case, pain was always complained of, and a hardness could certainly be felt. On dissection, the parts were found much condensed, and difficulty was experienced in passing the needle; but this was to be avoided by cautious dissection. Fifth, after prolonged pressure, the state in which the system is, is one very favourable for a subsequent operation. In the first case, from accidental exposure while on the operating table, an attack of lumbago came on. Lastly, Mr. Miller pointed out the odd parallelism which existed between the two cases as to the dates of admission and of their general progress. These histories furnished the following arguments for and against the treatment by compression: *Against.* 1. The pressure was not well borne. 2. The effect produced on the collateral circulation, and on the parts immediately subjected to the pressure, was very troublesome in the first case. 3. In both cases, the plan failed after a trial of five months. *For.* 1. If compression can be maintained so long, it must be a comparatively safe procedure. 2. The free collateral circulation induced was favourable to any subsequent operation, as there is less risk of gangrene of the limb. 3. The constitution was better prepared for the operation by ligature, should that become necessary.—*Proceedings of Med.-Chirurg. Soc., Edinburgh*, Dec. 6, 1854, in *Monthly Journ. Med. Sci.*, Jan. 1855.

47. *Stricture of the Urethra.* By James Syme, Prof. Clin. Surgery. (Extracted from Clinical Lectures.)—I will now bring before you a case of stricture of the urethra of great interest. The patient, Daniel M——, aged thirty-seven, a seaman, has long suffered severely from the disease. He was treated by dilatation, eight years ago, in the hospital at Plymouth; but, even then, small instruments alone could be passed, and soon after leaving the hospital he relapsed into his former condition. At present, micturition is very laborious and frequent, sometimes hourly, and the stream of urine extremely slender. On examination, I found a bougie of moderate size arrested, an inch and a half from the orifice, by an obstruction, which could not be passed by the smallest bougie; I then tried a common probe, but this also could not be passed. I now had recourse to the instrument which I hold in my hand, which was made for cases of this description. You see it is considerably finer than a common probe at its extremity, and gradually increases in thickness towards the handle. This instrument passed without the slightest difficulty. If the stricture had been seated at the bulb, it might have been said that the fact of my being able to pass only so small an instrument was no certain evidence of an extreme degree of contraction, as there is difficulty in guiding the instrument with precision at that part of the canal; here, however, there is no such source of fallacy, for we can direct the instrument with certainty in the course of the urethra, and, small as it is, it is firmly grasped. The first remark I would make regarding this case has reference to what is called impermeability of strictures. Now, the No. 1 of our set of bougies is the smallest size that is made, while many sets have none so small; so that this stricture would be impermeable to all ordinary bougies. On the other hand, the very small instrument I have just shown you passed without the slightest difficulty; and this case, therefore, furnishes a good example of the principle that all strictures that allow urine to pass out, will admit of an instrument, sufficiently small, being insinuated through them. The next point to which I would direct your attention, is the situation of this stricture, anterior to the scrotum. It is here that the tightest strictures have been observed to occur, which is fortunate, for if there should be a stricture of the same degree of tightness behind the scrotum, its remedy would be attended with extreme difficulty. In the present

case, I feel the induration of the stricture like a small pea, somewhat elongated. Now, experience shows that of all strictures of the urethra, this condition is the most unmanageable by bougies; the patient tells us that so far from having experienced benefit from the introduction of instruments, his symptoms have rather become more aggravated, and I believe we might continue dilatation for any length of time without advantage. Instead, therefore, of pursuing this unsatisfactory course, I propose to divide the stricture at once. But you will say, How can it be divided? We must use a proportionately small director, the employment of which would be attended with great difficulty at the bulb, but will be very easy here. In this part of the canal there is no occasion for a long incision in the skin; the point of the knife being entered into the groove of the director, anterior to the stricture, will be pushed backwards through it, while the end of the penis is held firmly; the same principle being followed in cutting backwards here, as in cutting forwards for a stricture at the bulb—viz., that of proceeding from the side where there is greatest resistance. After this, I shall pass a full-sized instrument, and I expect it will go freely into the bladder. Of this we cannot be certain till the stricture at the anterior part of the canal has been divided; but, as far as I remember, I never met with a tight stricture behind the scrotum along with an extreme degree of contraction anterior to it. There will be no need to retain a catheter in the bladder: the urine will flow freely, and there will be no risk of extravasation; even if it did occur to the small extent which is alone possible, I should regard it as a favourable circumstance, on account of the effect it would have in preventing the urethra from uniting by first intention.

[The patient was now brought into the theatre, and Mr. Syme, having shown that the No. 1 bougie was arrested an inch and a half from the orifice, while the delicate instrument above described passed the obstruction without difficulty, endeavoured to introduce a very fine grooved steel director. This, however, could not be passed beyond a certain distance; but Mr. Syme, on feeling the instrument through the tissues of the penis, found that the point of the director had passed the stricture, which he felt like a pea upon it, and that it was only in consequence of the instrument being tightly grasped that it refused to pass further. He therefore proceeded to operate as he had proposed, after which he introduced successively three different sized bougies through the seat of stricture, and pushed on the largest (No. 8) with ease into the bladder, thus proving that no obstruction existed behind the one divided. Scarcely a drop of blood escaped during the operation. Mr Syme then made the following remarks:—]

This, then, gentlemen, is, as you have seen, a very simple process; yet the patient may be almost said to be already cured. I think it likely that, instead of leaving the hospital very imperfectly relieved, after several months of dilatation, he will in a few days go away, without requiring any further precaution than the occasional introduction by himself of a steel bougie, two inches in length, to prevent the risk of contraction during the healing process. You will, I trust, not soon forget that remarkable fact which you have just witnessed—viz., that, after I had introduced the very small director fairly through the stricture, the firm grasp of the contracted part made it impossible to push it further without a degree of force, which I did not feel justified in using.

[The operation was performed on the 15th of January. On the night after the operation the patient retained his urine for seven hours, and never afterwards voided it with unnatural frequency. It flowed in a full stream by the urethra, but for a few days issued also to a small extent by the wound, in the neighbourhood of which the cellular substance showed some signs of irritation by swelling and tenderness. Full-sized bougies were occasionally introduced, and he left the hospital to join his ship on the 6th of February.

In his lecture on the 25th of January, Mr. Syme said:—]

There are two patients who have been in the hospital for the last seven weeks, with stricture of the urethra at the bulb, as tight as you ever meet with in that situation. It was at first difficult to say which of these cases was the worse; both had extreme difficulty of micturition, and both incontinence of

urine, and both required, in the first instance, the smallest-sized bougies, which I experienced some difficulty in introducing. By passing instruments regularly at intervals of three or four days I was soon able to introduce a large sized bougie in both cases, but neither appeared at first to improve in their symptoms under the dilatation. By and by, however, one of them did derive benefit; he lost the incontinence, and could pass his urine in a much better stream—in short, he is now so much improved, that I think in his case we may be satisfied with dilatation. You observe I express myself with some hesitation; for the more I see of these complaints in this obstinate form, the more doubt I entertain as to the expediency of trusting to dilatation for their cure. The other patient, however, has not experienced the relief that we desired; his difficulty of micturition is almost as great as ever, and his clothes are still wet both by day and night from incontinence of urine. I also found, after leaving him for a few days longer than usual without the introduction of instruments, that, instead of going on with the large-sized bougie I had used on the last occasion, I was obliged to begin again with No. 1. On my next examination of the urethra, ten days later, I was unable to pass even the smallest size. In this case, therefore, if we had no means except dilatation, we should be puzzled and at a loss what to do next; but I need hardly say that we shall feel no such perplexity, but shall proceed to the other mode of relief for stricture—viz., dividing it by external incision. But before having the patient brought in, I will mention to you a striking case, at present under my care in private. During my short residence in London, this gentleman came up from Aberdeen, and placed himself under my care, in order to obtain relief from a stricture, which had been treated for some time as impermeable by several surgeons. I at once succeeded in introducing a small instrument, and, after employing dilatation for three weeks, the urethra admitted a full-sized bougie, and he went away apparently well, and with the hope of continuing free from his symptoms, with the occasional introduction of an instrument. Instead of this, however, he has ever since—that is to say, for the last seven years—been perpetually under the care of surgeons in different parts of Great Britain. On one occasion he had complete retention, and several surgeons then failed to pass a catheter. But the remarkable circumstance is, that he has been during this period repeatedly treated by dilatation to the full extent. And now comes the most important point of all: this patient, though in full general health, not above forty years of age, married, and leading a regular life, and therefore not in danger of contracting the disease afresh, yet, even when the stricture was fully dilated, has never passed urine with ease; he has even felt an insecurity of being able to void it at all, and has been frequently obliged to go out of church or to leave company in consequence of the importunate desire for micturition which has accompanied his complaint. His life has, in short, been miserable, and this, you observe, at times when bougies of full size could be passed into the bladder. This is an example of that form of the disease which first led me to aim at some other means of effecting that for which dilatation was evidently inadequate. These cases were formerly the opprobria of surgery. It is only three days since I divided the stricture in this gentleman; yet he told me yesterday (I have not seen him to-day) that he felt as if something was taken away that had made life miserable; an incubus had been removed that had been weighing him down during many long years of suffering. (The relief in this case proved permanent.)

[The patient was now brought into the theatre, and chloroform having been administered, Mr. Syme succeeded, after some little difficulty, in passing the thin part of his staff through the stricture. The rest of the operation was easily completed in the usual way. Mr. Syme, while he had his finger in the wound, observed that he could feel the artery of the bulb beating at the side, and remarked that this showed forcibly the danger of deviating from the middle line in making the deep part of the incision. Mr. Syme then easily introduced into the bladder a No. 11 catheter provided with a stop-cock. The patient having been removed, Mr. Syme made the following remarks:—]

You had, not long ago, an opportunity of seeing the operation performed in a case complicated with fistulas, and great thickening and induration of the

perineum; those are the cases in which the operation presents the greatest difficulty. Again, ten days ago, you saw me divide a stricture anterior to the scrotum, in which the operation presents the greatest simplicity, and is easiest of performance. That patient, I may remark, continues well, passing his urine without pain in a good stream, and the urethra admitting a full-sized instrument. The operation you have just seen holds a middle place as regards difficulty of the operation, the stricture being seated as far back as it is ever met with, but the perineum free from induration. You see here on the table the blood that was lost during the operation; though he is a young man of thirty, in full health, and with rather greater disposition to bleed than is usual, yet two teaspoonfuls would be a liberal allowance for the amount of the hemorrhage.

[Everything afterwards went on favourably; on the removal of the catheter at the end of forty-eight hours, the urine passed in a perfectly full stream by the urethra, and continued to do so, none having escaped by the wound. In a few days he was going about the ward, and might then have been dismissed, but remained under observation until the 27th of February, nearly five weeks after the operation, when he got his discharge after a full-sized bougie had been passed with perfect facility into the bladder.]—*Lancet*, March 10, 1855.

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48. *Notes on Lithotrity, with an Account of the Results of the Operation in the Author's Practice.*—By Sir Benjamin Brodie.

The author announced that his chief objects were—to communicate, in a series of notes, some observations as to those circumstances which are especially deserving of attention, with a view to the success of the operation: to give a brief but accurate account of the actual results of his own practice; and to add some observations as to the amount of danger involved in the operation by crushing, compared with that which belongs to lithotomy. He adduced reasons why this operation was not applicable to the period of youth, nor generally common or necessary in females. He preferred the forceps worked by a screw to that in which the force is applied by means of a rack, since the latter, though affording some advantages in the way of greater expedition, must be manifestly deficient in power as compared with the screw. The author remarked that no prudent surgeon would willingly undertake this operation unless the bladder admitted of the injection and retention of from four to six ounces of tepid water; and that where this power had been lost, it had in all his cases but one been restored by keeping the patient in the recumbent position for seven or fourteen days, and injecting the bladder daily. He then described the steps of the operation, urging the great necessity for the gentlest possible manipulation of the forceps, that injury may be avoided, pain diminished, and, by consequence, the bladder rendered less prone to contract upon its contents; that, with these points in view, the forceps should never be used as a sound for the purpose of exploring the bladder or ascertaining the position of the calculus, but that the convex part of its curved extremity should be brought into contact with, and gently pressed against, the posterior and lower surface of the bladder by the elevation of its handle; that if, when in this position, on the blades being separated, the stone does not fall into it by its own weight, the instrument may be slightly struck on one of its sides, which slight concussion will probably dislodge the calculus from its fixed position and cause it to fall; if unsuccessful in this, the forceps may be very cautiously turned to one side or the other, and the same rules followed in that position as before; but a freer use of the instrument should never be made, not even in cases of enlarged prostate gland. For such cases the author advocated the value of any apparatus by which the shoulders may be suddenly lowered and the pelvis elevated, the calculus being thus thrown into the fundus of the bladder. With the same object, the patient may be directed to change his position from side to side, or to walk about, the bladder being emptied and again injected. Caution was given against the use of any kind of forceps which retains a considerable portion of the detritus within its blades, as being liable to stretch and tear the urethra, induce rigors, and even infiltration of urine and abscess. This happened to the author in four instances, two of